

In Item 2 on page 2 of the Office Action of Dec. 31, 2002, FIG. 4 was objected to as not including “prior art” designation thereon. However, FIG. 4 shows a system in which aspects of the present invention *are* implemented, and is described on page 16, lines 6-15, of the specification. Applicant respectfully requests that the Patent Office explain why that is not acceptable.

Claims 1, 2-8 and 10-32 are pending in the patent application. All the claims were rejected. Rejection of all of the claims is respectfully traversed, because the claims include limitations not taught or suggested by the cited references, as describe below.

As independent Claim 1 is the basis of several dependent claims, Applicant first addresses the rejection of Claim 1 in Items 16 and 17 of the Office Action of Dec. 31, 2002, before responding to other items in the Office Action.

In Items 4, 16 and 17 of the Office Action, Claims 1-4 were rejected under 35 USC 103(a) as being unpatentable over Girod et al. (hereinafter “Girod”) in view of USPN 5,742,685 to Berson et al. (hereinafter “Berson”). Claims 2 and 9 were canceled in response to the Office Action of June 4, 2002, and limitations of Claims 2 and 9 where incorporated into Claims 1 and 8, respectively.

In rejecting Claims 1, 3-4, a plurality of claims were improperly grouped together in a common rejection. It is well settled that “A plurality of claims should never be grouped together in a common rejection...” and that an omnibus rejection of the claims is inappropriate because it does not delineate the reasoning for the rejections and does not allow the Applicants to form a lucid response. MPEP 707.07(d). In the Office Action of June 4, 2002, and again in the Office Action of Dec. 31, 2002, claims were grouped together in a common rejection. Accordingly, Applicants respectfully request that if the rejection of Claims 1, 3-4, is maintained, that a specific reasoning be provided for rejecting each claim.

Claim 1 includes the limitation of “transmitting the scrambled signal and said data signal to a receiver”. As the Patent Office also states, this limitation is not taught to suggested by Girod. In the Office Action, the Patent Office suggests that in Col. 4, lines 9-12, Berson teaches appending a decryption key to a cryptogram in order to facilitate recovery of the encryption information. The Patent Office then states that, as such, it would have been obvious to facilitate removal of the watermark in Girod by including a frequency spreading signal with the transmitted data as taught by Berson.

Applicant maintains that Berson is non-analogous art and not reasonably pertinent to the present invention. The Patent Office summarily concludes that Berson teaches a method of transmitting encrypted material so that a recipient can recover the cryptogram. However, Berson

is directed to an identification card. It provides a method and apparatus for producing and authenticating such an identification card. A person is scanned to produce a digital signal which is compressed, encrypted, and coded as a two dimensional barcode. The results is incorporated into one portion of the identification card. The image is also printed onto another portion of the identification card. The signal representing the image is encrypted using a public key encryption system and the key is downloaded from a center. To validate the card the coded message is scanned, decoded, decrypted, expanded and displayed. By contrast, the present invention provides a system for copy protecting a digital signal representing audiovisual information.

Further, it is respectfully submitted that the Patent Office's interpretation of Berson is lacking. Nowhere in Berson are the limitations of "transmitting the scrambled signal and said data signal to a receiver" according to Claim 1, taught or suggested. In Col. 4, lines 1-41, Berson states in relevant parts:

"Text input 30 provides text message T and at least a portion of text message T, which preferably includes other personal information such as name, address, license number, etc. relating to person P, is combined with the compressed form of the first signal to form the second signal which is encrypted by encrypter module 20 to provide encrypted information  $E_i[M]$ .... [L]ike image I text T is embodied in card C in both humanly recognizable form on the front CF and coded

and encrypted form on the back CB of card C. **In a preferred embodiment of the subject invention a data center 40 transmits encryption code  $E_i$  to encrypter module 20.... To facilitate decryption of encrypted information  $E_i[M]$  data center 40 also transmits an encrypted decryption key  $X[D_i]$  to be appended to the encrypted information  $E_i[M]$  by coder module 22... [W]hen card C is to be verified the necessary decryption key  $D_i$  can be obtained by decrypting encrypted decryption key  $X[D_i]$ ....” (emphasis added).**

As such, according to Berson, the image I and text T are embodied in card C in both humanly recognizable form on the front CF and coded and encrypted form on the back CB of card C. In the preferred embodiment of FIG. 1, the data center 40 transmits encryption code  $E_i$  to the encrypter module 20. For decryption of encrypted information  $E_i[M]$ , the data center 40 also transmits an encrypted decryption key  $X[D_i]$  to be appended to the encrypted information  $E_i[M]$  by coder module 22. When card C is to be verified, the necessary decryption key  $D_i$  can be obtained by decrypting encrypted decryption key  $X[D_i]$ . Therefore, the data center 40 sends encryption key  $E_i$  and decryption key  $D_i$  to the encrypter module 20, such that the encrypted information  $E_i[M]$  and decryption key  $D_i$  are placed on the card for later validation of the card.

By contrast, according to the present invention, a digital signal is copy protected by: (a) encoding the digital signal to obtain an encoded signal; (b) converting the encoded signal into a

copy protected signal using a copy protection function, wherein the function utilizes a data signal representing copy protection data; (c) scrambling the copy protected signal to obtain a scrambled signal; and (d) transmitting the scrambled signal and said data signal to a receiver (Claim 1).

The audiovideo digital signal is first encoded to obtain an encoded signal, and the encoded signal is converted into a copy protected signal using a copy protection function (the copy protection function utilizes a CP data signal representing copy protection data). Then the copy protected signal is scrambled to obtain a scrambled signal; and the scrambled signal and said CP data signal are transmitted to a receiver.

However, in Berson an encryption key  $E_i$  and an encoded decryption key  $X[D_i]$  are transferred from center 40 to encrypter module 20. In contrast, according to the claimed invention, a scrambled, copy protected, signal and, the CP data signal, are transmitted to the receiver. This difference is further shown by FIG. 2 of Berson which shows apparatus 50 for validating the identification card C. The back CB of card C is scanned by a barcode scanner 52 having the capability to scan an appropriate two dimensional barcode. The scanned signal is then decoded by decoder module 54 and decrypted by decrypter module 58. Key X (or keys) is obtained by decrypter 58 from center 40. According to Col. 4, lines 9-12 of Berson (relied upon by the Patent Office), the data center 40 does not send out copy protected, encrypted information, AND a data signal to be used to remove the copy protection. The data center only provides

encryption and decryption keys to encrypter 20. This is totally different than the present invention.

In the Office Action of Dec. 31, 2002, the Patent Office has not responded to Applicant's arguments in response to Office Action of June 4, 2002. A proper response is respectfully requested.

The Office Action recognizes the advantages of the presently claimed invention by trying to make modifications in Girod and Berson "to facilitate removal of the watermark in Girod by including the frequency spreading signal with the transmitted data". It is well settled that in order for a modification or combination of the prior art to be valid, the prior art itself must suggest the modification or combination, "...invention cannot be found obvious unless there was some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention." *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). "The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound." *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). Neither of the references suggests the motivation to modify or combine the references as proposed. Girod and Berson are individually complete and functionally independent for their limited specific purposes and there would be no

reason to make the modification proposed by the Office Action. Therefore, because neither of the prior art references suggests the combination and modifications proposed by the Office Action the combination and modifications are improper.

There is no motivation in Girod of including the frequency spreading signal with the transmitted data. Further, the Patent Office does not explain how “including the frequency spreading signal with the transmitted data” can be accomplished Girod according to Berson. Berson only provides a method and apparatus for producing and authenticating an identification card. As detailed above, the signal representing a person’s image is encrypted using a public key encryption system and placed on an ID card. For decryption, the key is downloaded from a center. As such, not only

Even if the modification was legally justified, it still would not render Applicants’ claimed invention obvious. The Office Action admits that Girod does not teach all limitations in Claim 1. Therefore, the Office Action attempts to modify Girod in order to teach Applicants’ claimed invention. However, as discussed, there is no teaching in Girod and or Berson of the claimed limitations. Berson teaches away from the present invention. Accordingly, the effort required to combine the teachings of Girod and Berson would require a substantial undertaking and numerous elements which would not be obvious.

Further, Applicant respectfully submits that the Office Action is improperly using “hindsight” and the teachings of Applicant’s own claimed invention in order to combine references to render Applicants’ claims obvious. The Office Action admits that Girod fails to teach all of the limitations of Applicant’s claimed invention. However, the Office Action improperly attempts to modify Girod using Berson (which also fails to teach all of the limitations of Applicant’s claimed invention), in an attempt to achieve Applicant’s claimed invention.

Finally, if Applicants’ claimed invention were in fact obvious, those skilled in the art would have modified the teachings of Girod to incorporate the teachings of Berson. The fact that neither reference has been modified, to implement Applicants’ claimed invention, despite its great advantages, indicates that Applicant’s claimed invention is neither obvious nor taught by the prior art.

Therefore, for at least the above reasons, Claim 1 is patentably distinct from the cited references, alone or in combination. Accordingly, rejection of Claim 1, and dependent claims therefrom, should be withdrawn. For the same reasons, rejection of Claim 8, and dependent claims therefrom, should be withdrawn. Rejections of Claims 3 and 4 are addressed further below.



In the following Applicant responds to Items 5-19 of the Office Action in the order they appear in the Office Action. It should first be noted that in Items 14 through 19 of the Office Action of Dec. 31, 2002: (1) Claims 15, 16 and 19 were rejected under 35 USC 102(e) as being anticipated by USPN 6,061,451 to Muratani et al. (hereinafter “Muratani”); (2) Claims 1-4 were rejected under 35 USC 103(a) as being unpatentable over Girod et al. (hereinafter “Girod”) in view of USPN 5,742,685 to Berson et al. (hereinafter “Berson”); (3) Claims 17 and 18 were rejected under 35 USC 103(a) as being unpatentable over Muratani; and (4) Claims 20-24, 26, 28, 29 and 32 were rejected under 35 USC 103(a) as being unpatentable over Muratani in view of Schneier (Applied Cryptography) and USPN 6,249,866 to Brundrett et al. (hereinafter “Brundrett”). However, the Office Action does not provide reasons, in the form of Items 14 through 19, for rejection of Claims 5-10, 11-14, 25, 27, 30 and 31. Accordingly, it is respectfully requested that the Patent Office provide explicit grounds of rejection for Claims 5-10, 11-14, 25, 27, 30 and 31. For these reasons, Applicant respectfully request that the Final Rejection be withdrawn such that Applicant can fairly respond to the rejections. Applicant hereby reserves the right to present such a response.

While maintaining the above objections, Applicant herein sets forth the following response to emphasize the novelty and unobviousness of Applicant’s invention, and further in response to the contentions in Items 6 through 13 of the Office Actions with respect to Claims 5-10, 11-14, 25, 27, 30 and 31. As such, in the following Applicant responds to Items 5-19 of the

Office Action in the order they appear in the Office Action.

Regarding Item 5 in the Office Action of Dec. 31, 2002, if in combining references, the Patent Office concludes that a reference teaches a limitation, and the Applicant disagrees, then Applicant is to point out as such. Therefore, it is respectfully submitted that Applicant's arguments against each reference are provided in response to the Patent Office's contention that that reference teaches or suggests a claimed limitation.

Regarding Item 6 in the Office Action of Dec. 31, 2002, as aforementioned, the explicit grounds for rejection of Claims 6 and 13 are not clear from the Office Action. In response to contentions in Item 6 of the Office Action, it is respectfully submitted that Girod does not teach all of the limitations of Claims 6 and 13. The Patent Office contents that Applicant did not refute some teaching of the Prior art in Item 6 of the Office Action of June 4, 2002. In the Office Action of June 4, 2002, Claims 1, 6, 8 and 13 were rejected under 35 USC 102(e) as being anticipated by Girod. As such, in the Reply to the Office Action of June 4, 2002, Applicant refuted the arguments in that Office Action, and argued that Girod does not disclose all of the limitations of Claims 6 and 13.

Again, according to Claim 1, on which Claim 6 is dependent, initially a digital signal is copy protected by: (a) encoding the digital signal to obtain an encoded signal; (b) converting the

encoded signal into a copy protected signal using a copy protection function, wherein the function utilizes a data signal representing copy protection data; (c) scrambling the copy protected signal to obtain a scrambled signal; and (d) transmitting the scrambled signal and said data signal to a receiver. The present invention offers the flexibility of using copy protection data to introduce copy protection, and then use the transmitted copy protection data, to recover/remove the copy protection, according to Claim 6.

Girod does not disclose “descrambling the scrambled signal to recover said copy protected signal”, as required by Claim 6. Girod does not disclose “reconverting the recovered copy protected signal back into the encoded signal using an inverse copy protection function, wherein the inverse function utilizes copy protection data from said copy protection data signal”, as required by Claim 6. Girod does not disclose “decoding the converted encoded signal to recover said digital signal,” as required by Claim 6.

By contrast, in relation to Figure 1 (relied upon by the Patent Office), Girod states:

“The input to the system is either a digital video signal or an analog video signal...” (col. 3, lines 49-52);

“The digital video signal (either original or converted using A/D converter 8) is then input to a video coder 10, which is one of a number of different known digital video compression coders” (col. 3, lines 55-58); and

“Referring again to FIG. 1, the output of the interframe coder 10 is input to either digital watermarking apparatus 26 or data storage device 24” (col. 4, lines 60-62).

Then in conjunction with Figures 1 and 2c, in col. 5, lines 7-10 of Girod (relied upon by the Patent Office), Girod states:

“Once the signal is watermarked, it is transmitted to the receiver in question. The received signal can then be decoded at the destination site using interframe video decoder 28. The decoder 28 performs the inverse functions of the coder 10, in a manner well understood in the art. The watermark, having been embedded in the digital signal, can be recovered later in a manner described below.”

Clearly, in Figures 1 and 2c and col. 5, lines 7-10, Girod does not disclose “descrambling the scrambled signal to recover said copy protected signal”, as required by Claim 6. Further, Girod does not disclose “reconverting the recovered copy protected signal back into the encoded signal using an inverse copy protection function, wherein the inverse function utilizes copy protection data from said copy protection data signal”, as required by Claim 6. Recovering copy protection data allows use of that data by a reconverter to reconvert the copy protected signal. Indeed, Girod does not disclose an inverse copy protection function that utilizes copy protection data from the copy protection data signal provided by a transmitter. And, Girod does not disclose “decoding the converted encoded signal to recover said digital signal,” as required by

Claim 6. The Patent Office is reading steps of the claimed invention into Girod, and as is clear from above, those steps do not exist in Girod.

The above arguments in relation to rejection Claim 6, are incorporated herein, in response to rejection of Claim 13. Therefore, for at least these reasons, Claims 6 and 13 should be allowed.

Regarding Items 7 and 14-15 in the Office Action of Dec. 31, 2002, the Patent Office refers to the Office Action of June 4, 2002, and rejects the Claims 15, 16 and 19 under 35 USC 102(e) as being anticipated by Muratani. In both Office Actions, the Patent Office has grouped Claims 15, 16 and 19 together in a common rejection. Accordingly, Applicants respectfully request that if the rejection of the claims is maintained, that a specific reasoning be provided for rejecting each claim. Further, In the Office Action of Dec. 31, 2002, the Patent Office has not responded to the arguments provided by Applicant in response to the Office Action of June 4, 2002. The Patent Office has simply re-offered the identical arguments. If the Claims are once again rejected, Applicant respectfully requests a proper response to Applicant's arguments.

Further, in Item 7 of the Office Action of Dec. 31, 2002, the Patent Office states that Applicant has made broad allegations for allowability of Claims 15, 16 and 19, without referring to specific claim limitations. Applicant urges the Patent Office to carefully review Applicant's

response to the Office Action of June 4, 2002. In response to the Office Action of June 4, 2002, Applicant pointed to specific limitations in the rejected claims, Applicant responded to the Patent Office's arguments, and Applicant showed why the Patent Office's reasoning is lacking. Examples of specific claim limitations that distinguish the claimed invention were provided in quotation marks, and are provided below as well.

Rejection of Claims 15, 16 and 19 under 35 USC 102(e) as being anticipated by Muratani is respectfully traversed because the claims include limitations not taught or suggested by Muratani. For example, Muratani does not teach or suggest:

“a processor for: (i) removing said data signal from the digital signal, and storing the copy protection data represented by the data signal in a memory device, (ii) extracting said scrambled signal from the digital signal, and (iii) providing the scrambled signal to the descrambler via the link;” and

“a reconverter for converting an incoming copy protected signal from the descrambler back into said audiovisual signal using an inverse copy protection function, wherein the inverse function utilizes said stored copy protection data ...” (Claim 15).

Muratani is directed to a data receiving apparatus as a set top unit connected to a network and a security module. Digital video data which is supplied from the network and scrambled according to a first system is scrambled according to a second system in a scramble circuit in the

set top unit, and is supplied to the security module. The data is descrambled according to the first system in a descramble circuit in the security module, and is transferred back to the set top unit. The data is descrambled according to the second system in a descramble circuit in the set top unit, and is outputted to an image display terminal.

The Patent Office's characterization of FIG. 2 of Muratani is lacking. Despite the Patent Office's characterization, in FIG. 2 and Col. 5, line 9 to Col. 6, line 11, Muratani teaches receiving a first scrambled signal (scrambled according to first scrambling system (Sa)), into a receiver (set top unit) 50. This first scrambled signal is input to demodulator 52, wherein an output of the receiver/demodulator 52 is supplied to the scramble circuit 54, which performs a second scramble process Sb different from the first scramble process Sa, and to the key control circuit 62 which controls a key of the second scramble process. When data is supplied from the receiver/demodulator 52 to the key control circuit 62, the key control circuit 62 generates the scramble key for the second scramble process Sa and corresponding descramble key, and supplies the scramble key and descramble key respectively to the scramble circuit 54 and the descramble circuit 56.

The double-scrambled signal is sent to security module 70 (referenced by the Patent Office), where it is once descrambled according to the first scrambling system (Da). Then, the once-descrambled signal is sent back to the receiver 50 where it is descrambled again in the

descrambler circuit 56 according to the second scrambling system (Db), to obtain display data. As such, Muratani does not teach any of the above limitations. Further, The components in set-top unit 50 do not operate as the Patent Office represents. Muratani simply teaches receiving a scrambled signal (Sa) and then scrambling it again (Sb).

Therefore, there is no teaching in Muratani of a system with the specified components, that receives copy protected signal and copy protection data as a single signal, and then (1) recovers copy protection data from the single signal, (2) recovers said copy protected data from the single signal, and (3) uses the recovered copy protection data to reconvert the copy protected data. The references, alone or in combination, do not teach or suggest a system according to the present invention that receives a single signal (i.e., an initial digital signal that is processed into an encoded, copy protected and scrambled signal (first signal) combined with a copy protection data signal (second signal) into the single signal), and then processes the received signal such that: (1) the copy protection data signal (second signal) is removed, (2) the scrambled signal (first signal) is recovered and descrambled to regain the copy protected signal, (3) the copy protected signal is reconverted to the encoded signal by inverse copy protection using the stored copy protection data, and (4) the encoded signal is decoded to recover said initial digital signal.

For example, as claimed, a processor 210 (or such a function) shown in FIG. 2 and described in the patent application, for removing the copy protection data signal (second signal)



from the single signal, storing copy protection data represented by the copy protection data signal, and extracting the scrambled signal (second signal) from the single signal to provide to a descrambler (e.g., Claim 15(b)(2)) are not taught or suggested by the references, alone or in combination. The Patent Office's suggestion that a descrambler performs the same function as processor 210 is respectfully traversed, as clearly the processor 210 and a descrambler perform different functions as described above. Therefore, for at least the above reasons, it is respectfully requested that the rejection of Claim 15, and claims dependent therefrom, should be withdrawn.

Regarding Item 8 in the Office Action of Dec. 31, 2002, the Patent Office appears to again reject Claims 2-5, 7, 9-12 and 14 under 35 USC 103(a) as being unpatentable over Girod in view of Berson. In both Office Actions, the Patent Office has grouped Claims 2-5, 7, 9-12 and 14 together in a common rejection. Accordingly, Applicants respectfully request that if the rejection of the claims is maintained, that a specific reasoning be provided for rejecting each claim. Further, Claims 2 and 9 were canceled in response to the Office Action of June 4, 2002, and limitations of Claims 2 and 9 were incorporated into Claims 1 and 8, respectively.

Rejection of Claims 2-5, 7, 9-12 and 14 are respectfully traversed because the claims include limitations not taught or suggested Girod or Berson, alone or in combination.

As per Claim 3, for example, the limitation of "transmitting the scrambled signal and said

data signal as a single signal” is not disclosed or suggested by the references, alone or combination, for reasons provided in relation to Claim 1. As per Claim 10, the limitation of “a combiner for combining the scrambled signal and said data signal into said single signal, and a transmitter for transmitting said single signal” is not disclosed or suggested by the references, alone or combination, for reasons provided in relation to Claim 1. If Claims 3 and 10 are again rejected, Applicant respectfully requests that the Patent Office refer to such specific limitations in the references, if they exist, and provide specific reasons for rejection of each claim.

As per Claim 4, the limitation of “combining the scrambled signal and said data signal into said single signal” is not disclosed by the references, alone or combination, for reasons provided in relation to Claim 1. As per Claim 11, the limitation of “a transmitter for transmitting the scrambled signal and said data signal as a single signal” is not disclosed or suggested by the referenced, alone or in combination, for reasons provided in relation to Claim 1. If Claims 4 and 11 are again rejected, Applicant respectfully requests that the Patent Office refer to such specific limitations in the references, if they exist, and provide specific reasons for rejection of each claim.

Further, the limitations in parts (a)-(d) of Claim 5, parts (a)-(e) of Claim 7, parts (a)-(d) of Claim 12, and parts (a)-(c) of Claim 14, are not taught or suggested by the references, alone or combination. The Patent Office has not shown where these limitations are disclosed in the

references. For at least these reasons and the reasons provided above, rejections of Claims 5, 7, 12 and 14 should be withdrawn. If Claims 5, 7, 12 and 14 are again rejected, Applicant respectfully requests that the Patent Office refer to such specific limitations in the references, if they exist, and provide specific reasons for rejection of each claim.

Regarding Item 9 and 18, the Patent Office relies on Muratani and official notice in rejection to Claims 17, 18 under 35 USC 103(a), however, the Patent Office does not explain why such reliance on Official Notice is justified. Further, no motivation, suggestion or teaching is provided in Muratani to use such features. It is well settled that in order for a modification or combination of the prior art to be valid, the prior art itself must suggest the modification or combination, "...invention cannot be found obvious unless there was some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention." *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). "The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound." *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). As such, rejection of Claims 18 and 19 should be withdrawn.

Claims 25, 27, 30 and 31 were apparently rejected on the same grounds as Claims 17 and 18. Again, the Patent Office has improperly provided an omnibus rejection for a group of

claims. The rejections are traversed for the reasons above in relation to Claims 17 and 18.

In Items 10-13 and 19 of the Office Action, the Patent Office rejected Claims 20-24, 26, 28, 29 and 32 under 35 USC 103(a) as being unpatentable over Muratani in view of Schneier and Brundrett.

“A plurality of claims should never be grouped together in a common rejection...” and that an omnibus rejection of the claims is inappropriate because it does not delineate the reasoning for the rejections and does not allow the Applicants to form a lucid response. MPEP 707.07(d). In the Office Action of June 4, 2002, and again in the Office Action of Dec. 31, 2002, a plurality of claims were grouped together in a common rejection. Accordingly, Applicants respectfully request that if the rejection of the claims is maintained, that a specific reasoning be provided for rejecting each claim.

The rejection of Claims 20-24, 26, 28, 29 and 32 is respectfully traversed because the claims include limitations not taught or suggested by the references, alone or in combination.

Claim 20 covers a method of copy protecting in copy protection system including a receiver interconnected to a descrambler module via a link, where signals flow from the descrambler to the receiver via the link. The method includes the steps of “(a) receiving a

digital signal in the receiver, wherein the digital signal includes a scrambled audio-visual signal”.

Then, “(b) generating a copy protection data signal representing copy protection data”. The Patent Office’s characterization of Muratani (e.g., FIG. 2) is lacking. Despite the Patent Office’s contention, the key control circuit 62 does not satisfy limitations of step (b) of Claim 20. As per Item 10 of the Office Action, Muratani specifically states in Col. 5, line 9 to Col. 6, line 11, that when data is supplied from the receiver/demodulator 52 to the key control circuit 62, *the key control circuit 62 generates the scramble key for the second scramble process and corresponding descramble key*, and supplies that scramble key and descramble key to the scramble circuit 54 and the descramble circuit 56, respectively. Therefore, despite the Patent Office’s interpretation, key control circuit 62 does not generate copy protection data and as such does not meet limitations of part (b) of Claim 20.

Further, Muratani does not meet limitations of step (c) of Claim 20: “(c) transmitting the digital signal from the receiver to the descrambler module via the link”. That digital signal represents said scrambled audio-visual signal at the receiver, which is then sent to the descrambler module. By contrast, in FIG. 2 of Muratani, the incoming scrambled signal to receiver/demodulator 52, is first scrambled again in scramble circuit 54. Then, the scramble circuit 54 send this twice-scrambled signal is to module 70.

And, Muratani does not meet limitations of part (d) of Claim 20: “(d) descrambling the scrambled audio-visual signal in the descrambler module to obtain said audiovisual signal”. This is because in Muratani, descrambling said twice-scrambled signal in descramble circuit 72 of module 70, only provides a one-scrambled signal, and not the audio-video signal as claimed. Specifically, circuit 72 (Da) removes scrambling Sa, such that signal output of circuit 72 is still scrambled according to scramble circuit 54 (Sb).

In Item 11 of the Office Action, the Patent Office is literally asking the Applicant to include negative limitations in Claim 20. However, the language in Claim 20 is very concise and clear that descrambling the scrambled audio-visual signal in the descrambler module provides audiovisual signal, as required by step (d) of Claim 20. The Patent Office is straining to improperly read limitations of the claimed invention into Muratani.

Regarding Item 12, in the Office Action of June 4, 2002 (Item 11, last line of page 5 to first line page 6), the Patent Office relied only on Muratani, element 72, as teaching the limitations in part (d) of Claim 20. Now, in the Office Action of Dec. 31, 2002, the Patent Office admits that Muratani does not teach all of the limitations of part (d) of Claim 20 (Item 12, page 4), and says that it had relied on Muratani, Schneier and Brundrett. Applicant objects to this argument by the Patent Office, as the record clearly shows otherwise. This is a new ground of rejection. In the Office Action of June 4, 2002 (Item 11, last line of page 5 to first line page 6),

the Patent Office only relied on Muratani in relation to part (d) of Claim 20. Simply put, Muratani does not disclose all of the limitations of part (d) of Claim 20. And, the Patent Office has not shown which of the other references, alone or in combination, teach limitations of part (d) of Claim 20.

As the Patent Office also states, Muratani does not meet limitations of part (e) of Claim 20: “(e) converting the audio-visual signal in the descrambler module into a copy protected signal using a copy protection function, wherein the function utilizes said data signal”.

Further, Muratani does not meet limitations of part (f) of Claim 20: “(f) transmitting the copy protected signal from the descrambler to the receiver via the link”. No copy protected data is transferred anywhere in Muratani at all. There is no copy protection using copy protection data as claimed, taught or suggested anywhere in Muratani. Despite the Patent Office’s suggestion, in Muratani, what is returned from module 70 to module 50 is a scrambled signal, which has nothing to do with transmitting a copy protected signal using copy protection data, as claimed in part (f) of Claim 20.

Further, Muratani does not meet limitations of part (g) of Claim 20: “reconverting the copy protected signal to the audio-visual signal in the receiver using an inverse copy protection function, wherein the inverse function utilizes said data signal”. There is no inverse copy

protection function in Muratani. Again, Applicant respectfully requests that the Patent Office specifically point to such teachings or suggestions in Muratani. Descrambling in element 56 is not reconverting the copy protected signal to the audio-visual signal in the receiver using an inverse copy protection function, wherein the inverse function utilizes the data signal that represents said copy protection data, as claimed in part (g) of Claim 20

In Item 13 of the Office Action of Dec. 31, 2002, the Patent Office states that to achieve the invention in Claim 20, simply, the scramble circuit 54 of Muratani is moved from set top unit 50 and placed after descrambler 72 in module 70, and copy protection data is provided by element 62. The Patent Office finds justification for doing so by stating that Schneier mentions advantages for commutative scramble functions, and as such the scramble circuit 54 would necessarily be placed after element 72 in the security module by the suggestion of Brundrett.

It is well settled that in order for a modification or combination of the prior art to be valid, the prior art itself must suggest the modification or combination, "...invention cannot be found obvious unless there was some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention." *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). "The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound." *In re Jones*, 958



F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). Neither of the references suggests the motivation to modify or combine the references as proposed.

Indeed, Muratani teaches away from the modifications suggested by the Patent Office. The Patent Office suggests modifying Muratani, to move the scrambler 54 into the module, wherein element 62 provides copy protection data to the scrambler 54. This will require the element 62 to transmit copy protection data out of the set top unit 50, through a communication link, and then into the module 70. However, this goes against the proposed teachings/advantages of Muratani, for intentionally placing the scrambler 54 inside the set top unit 50. Specifically, Muratani states that:

“When data is supplied from the receiver/demodulator 52 to the key control circuit 62, the key control circuit 62 generates the scramble key for the second scramble process  $S_A$  (sic) and corresponding descramble key, and supplies the scramble key and descramble key respectively to the scramble circuit 54 and the descramble circuit 56. **Here, unlike the conventional example shown in FIG. 1, since those keys are not outputted outside the set top unit 50, user's secret data are protected securely.**” (col. 5, lines 31-44) (emphasis added).

Therefore, Patent Office's suggested modification to Muratani is improper.

Further, Muratani cannot be modified as the Patent Office suggests. In the Office Action of June 4, 2002 (Item 11, page 6) the Patent Office states “it would have been obvious to maintain security in transmissions between the set top unit and security module while avoiding miscommunication caused by non-commutative algorithms by decrypting data in the security module and then re-encrypting it with a key known to the recipient (the set top box in this case) as shown in Brundrett et al”. Yet, the Patent Office’s suggested modification of Muratani above compromises security because, as discussed, moving the scrambler 54 into the module 70, requires transmission of keys generated by element 62 out of unit 50 and then into module 70.

Further, Brundrett is directed to a system and method for encryption and decryption of files. In its Background section, Brundrett discusses existing problems where users tend to lose their keys to decrypt encrypted files. Brundrett states that the problem of lost keys can be eliminated by spreading the key around to multiple users, but this further compromises security. Moreover, each file may have a different password, making recall difficult. Accordingly, for convenience many users will encrypt many files with the same password key used to encrypt one file, whereby divulging a key to another person for one file often results in inadvertently giving that person the key to many other files. Moreover, in order to remove or add user access to one or more files, each file (and every copy of each file) must be decrypted and re-encrypted with the new key, and then redistributed (Col. 1, lines 39-50).

The Patent Office is interpreting the sentence in Col. 1, lines 47-50 of Brundrett to evidently teach the limitations in parts (e) and (g) of Claim 20. This interpretation is respectfully traversed. All Brundrett does is mention that in order to remove or add user access to one or more files, each encrypted file must be decrypted and re-encrypted with the new key, and then redistributed. Further, it is respectfully submitted that such process is different than the process of Claim 20, including: receiving a scrambled audio-visual digital signal in a receiver, transmitting the scrambled digital signal to a descrambler module and descrambling the scrambled digital signal in the descrambler module to generate a descrambled signal, generating a copy protection data signal and converting the descrambled signal into a copy protected signal in the descrambler module using the copy protection data signal, and then sending the copy protected signal from the descrambler module to the receiver, where it is reconverted to the audio-visual signal by an inverse copy protection function using the copy protection data signal.

Schneier mentions Shamir's Three-Pass Protocol on page 516, which "enables Alice and Bob to communicate securely without any advance exchange of either secret keys or public keys". As can be seen, keys are not exchanged. If the Patent Office considers the Three-Pass Protocol to be the foundation for Muratani (Office Action of June 4, 2002, Item 11, Page 6), then Applicant respectfully requests that the Patent Office explain its suggested modification to Muratani in Item 13 of the Office Action of Dec. 31, 2002, which requires keys to be sent from element 62 in set top unit to scrambler 54 moved to module 70.

Further, Muratani is not based on the Three-Pass Protocol as proclaimed by the Patent Office. For example, if Alice is set top unit 50 and Bob is the module 70, the Patent Office does not explain how such a Three-Pass Protocol is utilized in Muratani. For that matter, the Patent Office does not explain how Muratani, as modified by moving the scrambler 54 into module 70, utilizes such a Three-Pass Protocol, to achieve the limitations of Claim 20. Even Brundrett does not utilize such a Three-Pass Protocol because Brundrett only mentions that in order to remove or add user access to one or more files, an encrypted file is decrypted and re-encrypted with a new key. In fact, Brundrett cannot even use such a Three-Pass Protocol.

In Item 13 of the Office Action of Dec. 31, 2002, the Patent Office states that the scramble circuit 54 would necessarily be placed after element 72 in the security module by the suggestion of Brundrett. Applicant respectfully requests the Patent Office to specifically point out where such a suggestion can be found in Brundrett. Indeed, there is no such suggestion in Brundrett.

In order for a modification or combination of the prior art to be valid, the prior art itself must suggest the modification or combination, "...invention cannot be found obvious unless there was some **explicit** teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention." *Winner International Royalty Corp. v.*

*Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). “The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound.” *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). Neither of the references suggests the motivation to modify or combine the references as proposed. Therefore, because neither of the prior art references suggests the combination and modifications proposed by the Office Action the combination and modifications are improper.

Even if the modification was legally justified, it still would not render Applicants’ claimed invention obvious. The Office Action admits that Muratani does not teach all limitations in Claim 20. Therefore, the Office Action attempts to modify Muratani in order to teach Applicants’ claimed invention. However, as discussed, there is no teaching in the cited references of the claimed limitations. Muratani, Schneier and Brundrett, all teach away from the claimed invention. Accordingly, the effort required to combine their teachings would require a substantial undertaking and numerous elements which would not be obvious.

Further, Applicant respectfully submits that the Office Action is improperly using “hindsight” and the teachings of Applicant’s own claimed invention in order to combine references to render Applicants’ claims obvious. The Office Action admits that Muratani fails to teach all of the limitations of Applicant’s claimed invention. However, the Office Action

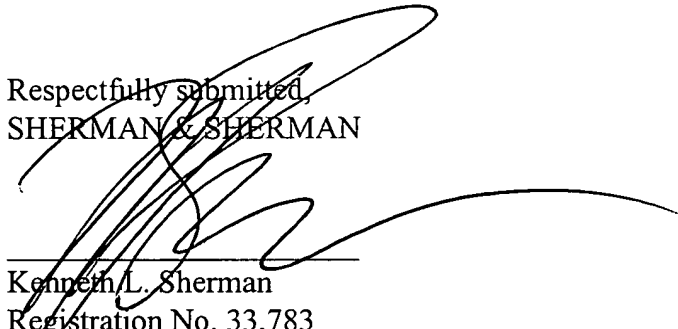
improperly attempts to modify Muratani using Schneier and Brundrett (which also fail to teach all of the limitations of Applicant's claimed invention), in an attempt to achieve Applicant's claimed invention.

Finally, if Applicants' claimed invention were in fact obvious, those skilled in the art would have modified the teachings of Muratani to incorporate the teachings of Schneier and Brundrett. The fact that neither reference has been modified, to implement Applicants' claimed invention, despite its great advantages, indicates that Applicant's claimed invention is neither obvious nor taught by the prior art.

As described above, despite the Patent Office's suggestion, key control circuit 62 in FIG. 2 of Muratani does not provide copy protection data as claimed in Claim 21. Further, the limitation in Claim 22 of generating copy protection data in the receiver and transmitting to the descrambler is important is not taught or suggested, and is needed to allow the descrambler to copy protect the descrambled signal to send to the receiver in a protected manner. Unlike the claimed invention, no copy protection data is provided from element 62 to module 70 in FIG. 2 of Muratani to copy protect data.

For these, and other reasons, it is believed that all of the claims are allowable.

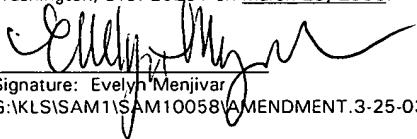
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